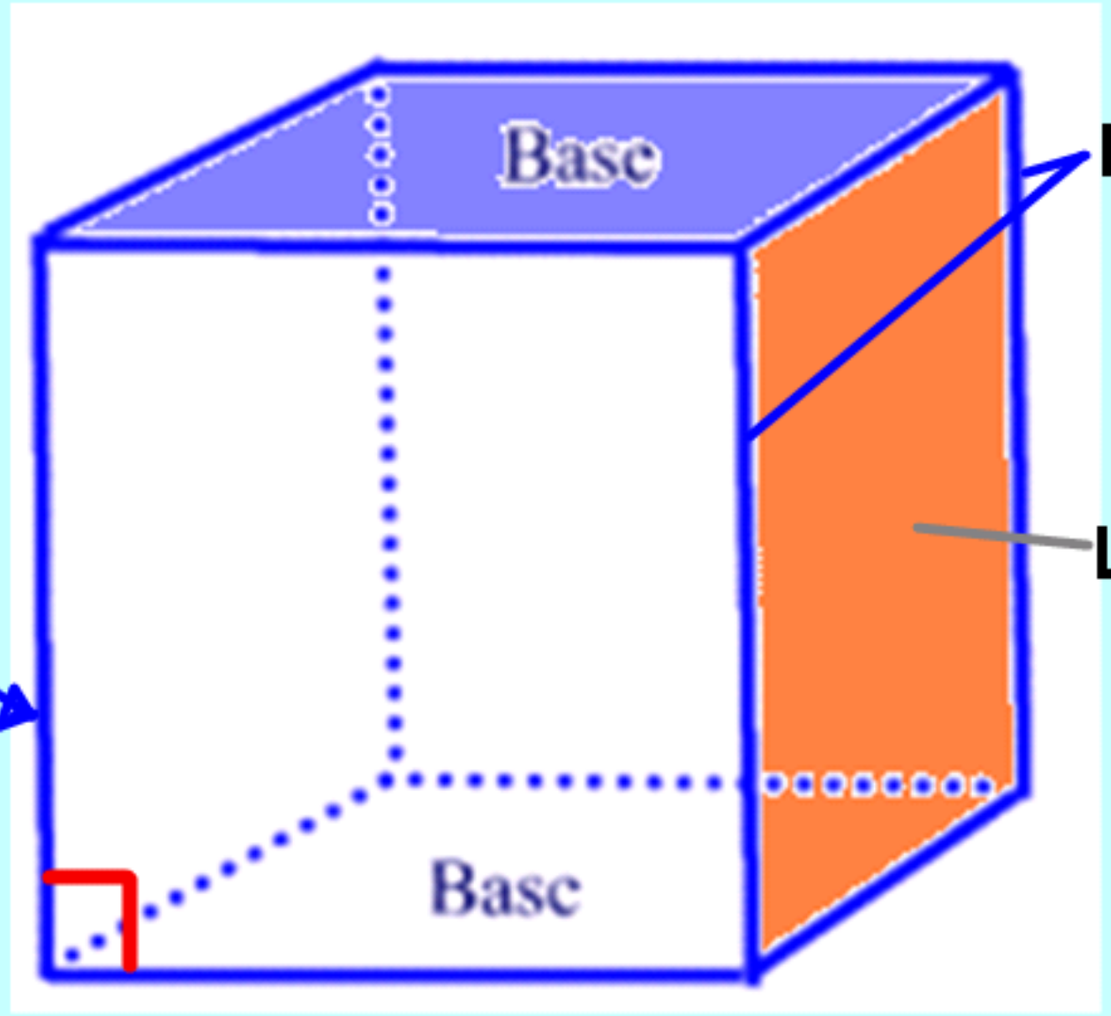
Surface Area of Prisms and Cylinders

Prism - a polyhedron that has two parallel congruent faces called bases

Lateral Faces - parallelograms formed by connecting corresponding vertices of the bases (faces that are NOT bases)

Lateral Edges - edges created by the intersection of lateral faces

Altitude/height of a Prism - the perpendicular distance between the prisms bases


Base
Lateral Edges
Lateral Face
Altitude/height
Basc

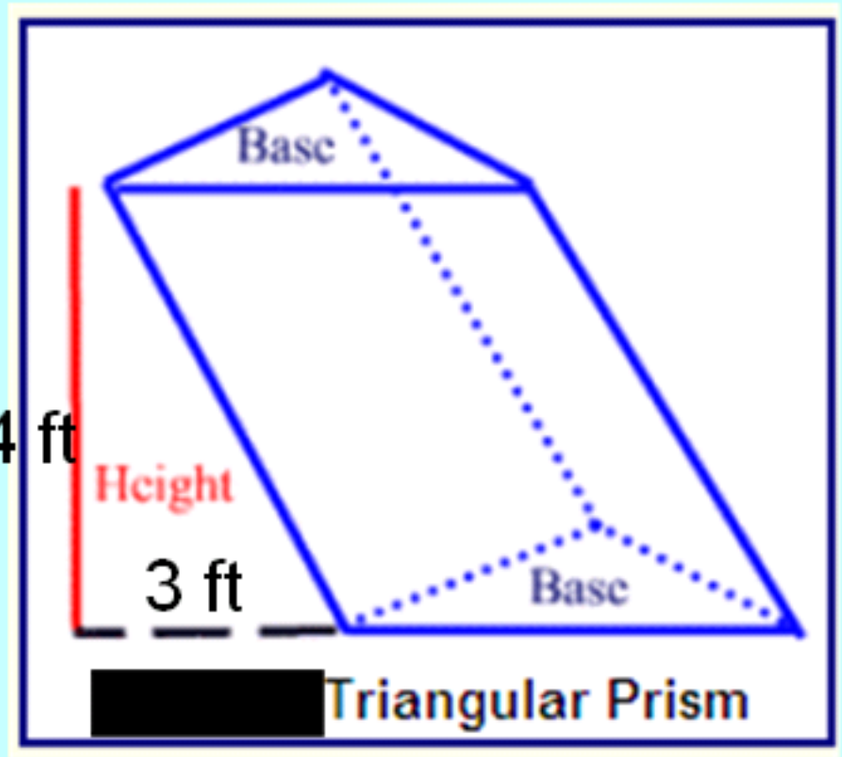
Right Prism - a prism in which each lateral edge is perpendicular to both bases

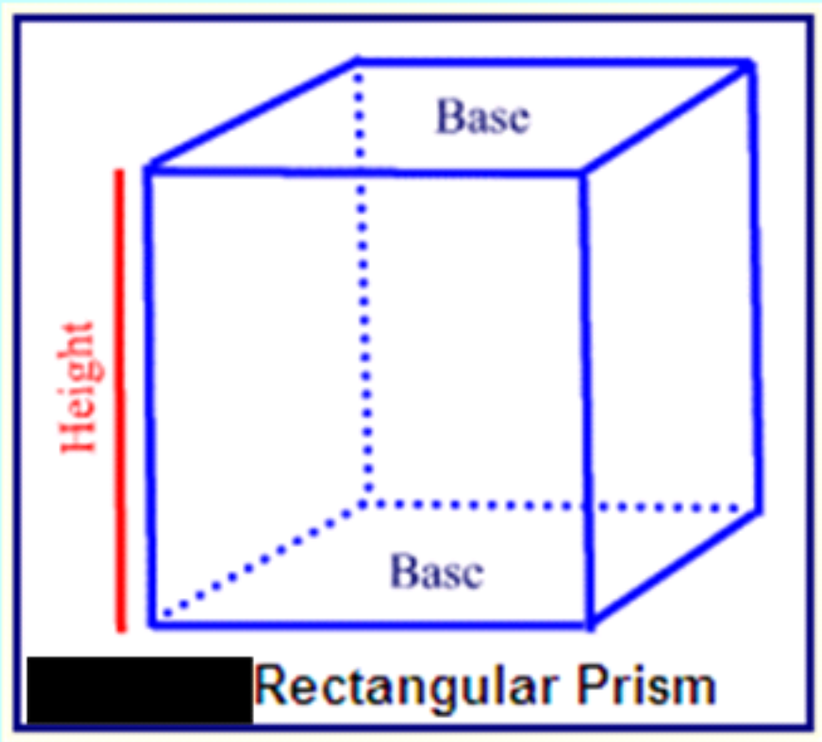
Oblique Prism - a prism that has lateral edges that are oblique to the bases

Slant Height - the length of the oblique lateral edges

Classifying Prisms - prisms are classified by their bases. The prism on the right is a rectangular prism. The prism on the left is a triangular prism.

Which prism is right and which is oblique?

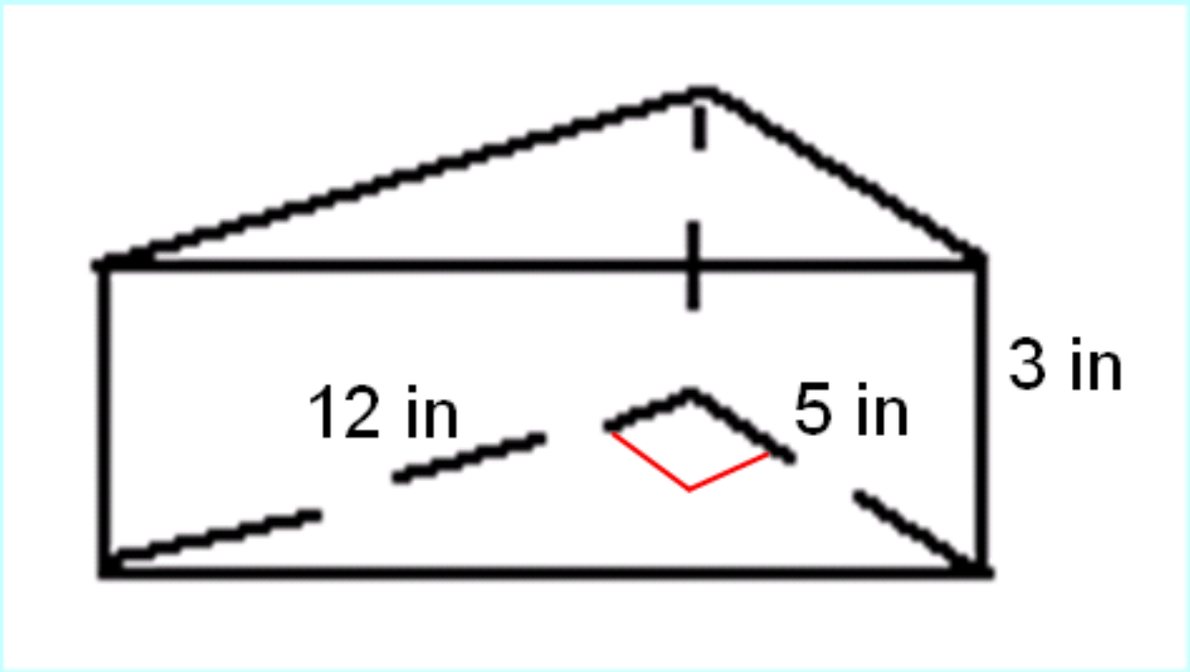




What is the slant height of the prism?

Surface Area - the surface area of a prism is the sum of the areas of its faces

Let's find the surface area of this triangular prism.



Theorem 12.2 -- Surface Area of a Right Prism

The surface area, S, of a right prism is

$$S = 2B + Ph$$

where B is the area of the Base, P is the perimeter of a base, and h is the height.

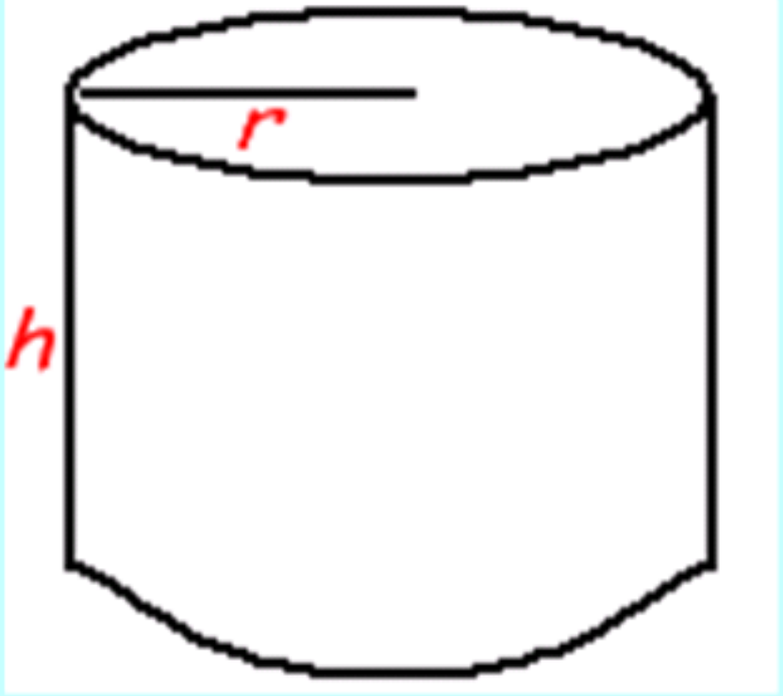
Theorem 12.3 -- Surface Area of Right Cylinder - let's try it!!

The surface area, S, of a right circular cylinder is

$$S = 2B+Ch = 2\ pi\ r^2 + 2\ pi\ rh$$

where B is the area of the base, C is the Circumference of a base, r is the radius of a base, and h is the height

r = 5 h = 9



Practice - p. 596 1 - 3
4, 5
6 - 8
9, 10
11 - 14
15 - 18

Homework - Extra Practice 12.2 (1-12, 13, 16)

Practice - p. 596 31 - 34
35 - 38

Homework - Extra Practice 12.2